Exploring Environmental Practices Within the Sea to Sky's Commercial Rafting Industry.

By

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ABSTRACT

This inquiry uses the ethical argument that everyone bears responsibility for the current climate crisis as inspiration to examine the whitewater rafting industry in the Sea to Sky of British Columbia. The Sea to Sky, an area north of Vancouver, is known for its natural scenery and tourism value. It is also where the author has been employed over the summer and his first-hand knowledge is used in this project to provide extra depth of understanding. Using the existing literature, this thesis argues that rafting operations have both a self-interest in developing, and duty to develop, environmentally responsible practices. Through interviews and qualitative analysis, this thesis investigates environmentally responsible behavior practiced within the Sea to Sky's rafting industry, and the motivations that operators feel concerning the environment. The thesis examines existing practices in adjacent industries to gain perspective on the themes identified in the primary research. Conclusions are created through a comparison of the current practices of the Sea to Sky's rafting industry and suggestions are generated for companies seeking to improve their own environmental practices.

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I would like to thank: my parents Lisa and Tom Marr-Laing, for showing me the wonder of our planet and for their continued support as I find my place on it; my loving partner Kiana for her unwavering belief in me; my supervisor James Rogers for introducing me to rafting and for his patience and guidance years later as he helped me write about it; Annette Dominik and Tracy Penny-Light for ensuring the Bachelor of Interdisciplinary Studies continues as a platform for those who dream outside the box; my readers Kellee Caton and Michael Mehta for their assistance in insuring this was an interdisciplinary piece; Thompson Rivers University's faculty who have encouraged me and helped make my degree my own; the countless, compassionate adventurers who I'm lucky to call friends; and lastly the river, for teaching me humility, courage and the power of leaning into what ever life throws my way.

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CHAPTER 1: INTRODUCTION

The world today faces an increasingly erratic climate due the effects of human processes. No human activity should be excluded from scrutiny when addressing this threat. Adventure tourism, specifically whitewater rafting, has consumed my summers between years of university, and the effects of this industry on the changing environment are unclear. It is important that commercial rafting be analysed for it's contribution to global-environmental problems and to ensure the sustainability of the industry. In this thesis, I use existing literature as a basis for qualitative research to explore what is being done within the Sea to Sky rafting industry concerning environmentally responsible behaviour. I then compare my findings with best practices from related industries to create an informed discussion on these behaviors. This thesis aims to create suggestions for improvement, whether they be related to commercial rafting's business practices or further areas of research.

Justification for an Interdisciplinary Approach

Climate change is inherently an interdisciplinary problem. It is a function of both human actions and natural processes. Many disciplines can measure its effects, and solutions to the issues surrounding climate change need to be approached holistically. The Intergovernmental Panel on Climate Change (IPCC) recognises this and draws upon a broad range of disciplinary backgrounds when releasing its recommendations. Interdisciplinary research can be defined as "work that achieves a significant transformation of knowledge through the integration of ideas or tools used by two or more traditional research programmes or projects" (Kahgram et al., 2010, p. 388). This thesis explores the issue of environmentally responsible behaviours in commercial whitewater rafting, drawing upon knowledge from the

fields of tourism, business, geography, and to a lesser extent, philosophy and environmental science. The primary research was conducted using a blended method approach common to the social sciences. This approach uses multiple perspectives to avoid being labeled as a disciplinary piece.

Researcher Background

To believe one's self a researcher without bias is naive. I am as much an active participant in the interview process as my interviewees. While I have guidance from mentors and peers, I crafted the questions asked and directed the focus of the interview. The final document is crafted through my lens. With this acknowledgement of bias, I believe that I, as the researcher, have a duty to diminish my own bias through the inclusion of other perspectives and to acknowledge my background.

From a young age, my parents incorporated outdoor activity into my life. I grew up recreating in the wilderness on skis or in a canoe. Over the first eight summers of my life, my family paddled or walked the entire length of the North Saskatchewan River from its source, the Columbia Icefields in Alberta, past its confluence with the South Saskatchewan River, finishing in Grand Rapids, Manitoba. These were formative years in my development, and since then the river has always felt like home. Since our great prairie-crossing adventure, my family has paddled numerous other rivers from the BC wilderness to the serenity of Saskatchewan's Canadian Shield.

Beyond a love of rivers, my family also is directly linked to the environmental movement in Alberta. My parents were early employees of the Pembina Institute, an environmental think tank, and the negative effects of greenhouse gas (GHG) emissions and

other environmental threats were a constant topic of conversation over dinner. My parents have been a source of inspiration in finding a pro-environmental voice and undoubtedly have had large effects on my current passions.

My upbringing has also given me insight into the realm of small business. My parents are entrepreneurs, and while not tourism providers, have offered me insight into the issues that small businesses face. It is my opinion that small business creates value, and this often guides my environmental philosophy away from absolute preservation through inactivity to a more measured approach of thoughtful conservation.

Since leaving my childhood environment, I have moved to British Columbia, where I have explored much of the southern portion of the province. My last four years at Thompson Rivers University (TRU) have opened my eyes to the industry of tourism and the critical approaches of academia. It is at TRU where I met my partner, whose Haida and Coast Salish ancestry has inspired deep reflection on the way I perceive nature and my relationship to the land. At the time of writing this, European values still guide most of my life, but I am seeking ways of incorporating other ways of being.

Over the last three summers, I have been employed as a raft guide and have gained insight and understanding of adventure tourism. I have worked at two dramatically different operations, the latter being on the Elaho and Squamish rivers highlighted in this study. I believe this firsthand experience of the operations I analyse, allows me trust not granted to the general public. My relationship with the participate enhances my ability to understand, while my academic side remains critical. This connection to the Elaho-Squamish is part of what drives my research as I seek to protect the Sea to Sky corridor

It is my aim to provide a more nuanced understanding of this thesis to the reader. This entire piece comes from the perspective of a young, white, cisgender male, and with that come unconscious assumptions. I recognise that demographically, my voice is abundant in Western society, but it is my desire to use it to speak in defence of the planet, which so often falls victim to voicelessness.

CHAPTER 2: RELEVANT LITERATURE

Adventure Tourism and Rafting in BC

With $18 billion in 2017 revenue, the tourism sector of British Columbia (BC) is an area worthy of study (BC Ministry of Tourism, 2019). Beyond the economic impact, the millions of overnight visitors to the province has a significant social and environmental impact. Adventure tourism is a subcategory of tourism that brings over $1.2 billion in revenue to the province (Destination BC, 2014). The Adventure Tourism Travel Association (ATTA) creates a biannual index of national competitiveness for countries around the globe called the Adventure Tourism Development Index (ATDI). This index ranked Canada as 7th amongst developed nations in 2018, a marked increase from 2008 when Canada did not even register in the top ten (*2018 Adventure Tourism Development Index*, 2018). As a global force, demand for adventure tourism is growing and there is little evidence to suggest adventure will not continue to shape the global tourist movement (*20 Adventure Travel Trends to Watch in 2018*, 2018). Because adventure tourism is actively growing, it is imperative that research is undertaken to help ensure its sustainability.

Commercial river rafting in 2005 brought in a share of 15 million dollars to BC's economy (Destination BC, 2014). As the baby boomers, a historically large segment of the population, age out of the rafting industry, commercial rafting has seen a stagnation in growth (*Rafting Use Trends*, n.d.). Except, however, for markets next to large urban centers, such as the Sea to Sky Corridor. The growth found in this region is worth examining for its increasing potential for impact on the environment.

The Burden of Action

The philosophical burden to examine humanity's relationship with the environment, is not new. Classics like *A Sand County Almanac* (Leopold, 1949) and *Walden* (Thoreau, 1854) brought questions of our relationship to nature to the forefront of our consciousness. Leopold's (1949) inclusion of land into our ethical duty has struck a chord in my research, and his themes have been expanded upon in popular works like Garret Hardin's (1968) *Tragedy of the Commons.* This examination of overconsumption at an individual level leading to a loss for a greater community is clear to see today. Moving from philosophy to environmental sociology, in *Overshoot* (1980), William R. Catton Jr., examines the years post lunar landing, and our perceptions of immunity from the limitations present in the natural world. He argues that our consumption patterns, in particular our reliance on fossil fuels, will increase with technology and that we will face ecological disaster. These past theorists and philosophers, who warn of dire consequences from humanity's misuse of the Earth, are now supported by vast amounts of scientific evidence (Cook et al., 2013).

The scientific community has near consensus that climate change is anthropogenic (human caused). 97% of climate-related abstracts of peer-reviewed scientific papers from 1991-2011 endorsed the position that humans are causing global warming (Cook et al., 2013). The Intergovernmental Panel on Climate Change adopted this perspective (2013), and has identified anthropogenic greenhouse gas emissions (GHG) as a primary driver for climate change. Of the GHGs we emit, carbon dioxide (CO_2) is the primary agent in radiating processes linked to changes in global temperatures, and other climate responses (IPCC, 2013).

The IPCC attributes CO_2 emissions from fossil fuel combustion and industrial processes as the source of 78% of total GHG emission increases (2014). When including

factors such as transportation, shopping and food, global tourism has been found responsible for 8% of carbon emissions worldwide (Lenzen et al., 2018). This makes the industry worth considering as a large contributor to climate change. While adventure tourism may not have the same impact as industrial processes, the industry often uses fossil fuels for transportation of people and goods. Adventure itself has been linked to the consumption of manufactured goods often made of plastics. (Rawles, 2013). Plastics are traditionally made from fossil fuels and the production, use and disposal of plastic have been linked to large amounts of GHG emissions (Zheng & Suh, 2019). The whitewater industry relies on many pieces of plastic gear to operate and should be further examined for its involvement in climate change.

The climate change that adventure tourism contributes to has consequences. The IPCC attributes lower food security, increased heat-related mortality and damaged infrastructure due to extreme weather, among other impacts linked to climate change (IPCC, 2014). More directly related to rafting, there are many sources (IPCC, 2014; Whitfield et al., 2003: Arnell and Gosling, 2014; Hanzer et al., 2018) who predict increased hydrological variability (change in water levels and flow). Increased flooding and shifts in the viable raft season may disrupt the industry. These are consequences for failing to address climate change.

Through philosophical and scientific findings, it is easy to see that climate change is a problem and is exacerbated by adventure tourism. Carbon emissions stand at the forefront of the problem, and there will be dire consequences if we do not act. From an ethics perspective, Dr. Melany Banks makes a compelling argument that we have a collective responsibility to address climate change. She stipulates that through participation in a harmful culture, or in our context, the emission of GHGs, one is individually responsible for their part in a collective effort to mitigate climate change. She also attributes more responsibility to those with more

power and control, claiming that along with the political class, CEOs and small business owners are responsible for effecting positive change (Banks, 2013). It is with this ethical burden that I choose to research the environmentally responsible behaviour of rafting companies.

The Environment's Impact on Tourism

British Columbia's tourism industry relies heavily upon natural beauty to attract visitors. "Visitors cite the natural environment, diversity of outdoor activities, and spectacular scenery as primary motivators for choosing to vacation in British Columbia" (Destination British Columbia, 2014, p.1). The Sea to Sky Corridor stands out in its beauty with impressive fjords, granite monoliths, large glaciers and countless waterfalls. These natural wonders have made nature-based tourism a staple of the economy. Whitewater rafting in the Sea to Sky has an inherent reliance on a healthy, natural environment. The water which makes the Elaho-Squamish rafting section viable is reliant upon snow and glacial melt. Without the surrounding glaciers, the river would be more reliant on rain - a less consistent source of water. A 2007 survey of British Colombia River Outfitters Association (BCROA) guests found that 95% of clients found scenery very important to river trips, and 72% stated that it was BC's beauty that made it a unique rafting destination (Tourism British Columbia, 2009). A study of visitors and experts out of the University of West Virginia found that suitability for nature-based tourism relied heavily on the presence of vegetation and remoteness (Dhami et al., 2017). The Sea to Sky's rafting has a reliance on the temperate rainforest it inhabits (*The Ecology of the Coastal Western Hemlock Zone*, 1999). The trip on the Elaho-Squamish surrounds participants in a forested valley far out of town with little evidence of civilisation. Forest quality is paramount for nature-based tourism providers to benefit from landscape and scenery; and tourism

companies have seen business increase due to forest quality improvement (Mäntymaa, et al, 2019). Beyond the scenic benefits of nature to tourism, there is also evidence to suggest nature soundscapes positively affect visitor loyalty and satisfaction (Jianf et al., 2018). The destruction of this natural asset, the environment, has dramatic impacts on tourism.

The year 2017 was a historic year for BC, in that record forest fires struck the province. Wildfires burned 1.2 million hectares and had large impacts on the tourism industry (Government of BC). A study commissioned to analyse the economic impacts of the fire upon the Cariboo Chilcotin Coast Tourism region found that the median loss from forest fires to tourism companies was $20 000. The area as a whole is estimated to have lost $55 000 000 in tourism sectors (Larose Research and Strategy, 2018).

A caveat to this information is the Cariboo Chilcotin Coast region is a much drier region than the Sea to Sky and therefore was much more heavily impacted by fire. However, the Vancouver, Coast and Mountain tourism region which encompasses the Sea to Sky, sees over fifteen times the number of visitors as the Cariboo Chilcotin Coast. So, while 2017 had little impact from evacuation and threat of fire in the Sea to Sky, the potential for economic loss is greater (Destination BC, 2017). The following summer had even larger burn areas in BC, totalling 1.3 million hectares (BC Wildfire Service, n.d.). As wildfire affects everyone across the province, commercial rafting, being reliant on consumers willingness to exert themselves in the outdoors, may face additional hurdles. The municipality of Whistler recommends people "consider exercising indoors" during periods of smoke, and Work Safe BC highlights the dangers of pollutants in wildfire smoke to outdoor workers (Resort Municipality of Whistler, n.d.; Work Safe BC, 2017). It is foreseeable that rafting will be impacted as tourists opt for indoor activities.

A 2019 study attributes the size of the fires in 2017 to anthropogenic climate change, finding that the area burned was increased by a factor of seven to eleven (Kirchmeier-Young et al., 2019). This supports the argument that tourism and rafting companies have reason to assist in environmentally responsible behaviours to fight climate change.

Another major environmental risk facing rafting companies is hydrological variability or changing water levels. Climate change has been proven to accelerate glacial melt, and this will have impacts on rafting's ability to operate (Lane & Neinow, 2019). The flow rates in the Sea to Sky are largely linked to snow and glacial melt in spring and summer - the rafting season (Stahl & Moore. 2006). These flows have an impact on the viability of rafting in the area. British Columbia River Outfitters Association provisions (BCROA, 2009) require rafting operators on the Elaho River to put onto the river below the Devils Elbow rapid in conditions above 300 cubic meters per second; changing the nature of the experience operators provide. From personal experience, rafters gauge the flow of the river by its height on the banks. The Elaho-Squamish changes greatly between the lowest and highest water level in the season. In low water, the number of paths guides have through rapids becomes limited, and rapids that may be avoided completely at higher water, become mandatory. At high water, the propensity for flipping becomes greater, and as the speed of the river increases with flow, decision making becomes more hurried. In 2019, Canada saw federal intervention on the Ottawa River banning any navigation on the commercial rafting sections due to flooding (Transport Canada, 2019). Rafting operates seasonally, and months of closure can have a large impact upon the fiscal bottom line.

If the Elaho river faced similar closure to the Ottawa river, the economic impacts could be immense for the operators. Academic studies project that water level variability will

increase into the future. The models also suggest flooding in early spring will be more prevalent (Whitfield et al. 2002; Whitfield et al. 2003). Rafting in the Squamish Valley is especially susceptible to flood as the shallow soil depth lowers rain absorption. Last summer, I witnessed rafting trips cancelled due to the destruction of access roads caused by flooding creeks.

Geo-climatic models indicate that not only will we see increasing flood events, but that summer drought will become more prevalent for southern BC hydrological systems (Schnorbus et al., 2012). Respondents to a technical survey commissioned by the province of BC highlighted concern over these extreme water-quantity events, stating a lack of information and uncertainty due to climate change (Scherer, et al., 2017).

While case studies on drought effect on local rafting are lacking, we can see the impact drought has had in Colorado. The state is no stranger to droughts. With frequent one-to-three month droughts being recorded since the late 1970s, special attention has been given to the impacts of low water on the state (Mckee, et al., 1999). The summer of 2002 was particularly bad for Colorado with drought and wildfire ravaging much of the state. This lower streamflow was related to a significant drop in rafting customers (>40% of the previous year) (Shrestha & Schoengold, 2008). Research from the University of Colorado concluded that commercial rafting activity in Colorado fluctuates directly with the water level. A drop in water level to 40% of regular flows (regular flows being 70% of optimal rafting levels) resulted in a loss of 50% of consumer demand (Loomis, 2008). Building on this theory, researchers have implicated wildfires and the related media coverage in the decreased participation in commercial rafting during the period of the 2002 drought (Shrestha & Schoengold, 2008; Schoengold et al., 2013). While Colorado is a markedly different geoclimatic region than Coastal BC, I believe the impacts of drought on rafting remain valid points of concern. BC

also faces threats of drought, wildfire and negative media attention; and if climate models prove correct, participation in commercial rafting could see significant losses.

Tourism's Impact on the Environment

Tourism has a positive effect on the environment in its educational value and its ability to create a sense of place within its consumers (Powell et al., 2009; Harrison et al., 2010; Franz & Mayer, 2014; Cheng & Wu, 2015; Beckman et al., 2017; Kim et al., 2018). While whitewater rafting is not specifically outdoor education, the interpretive nature of these trips can help guests practice environmentally responsible behaviour (Powell et al., 2009; Beckman et al., 2017; Gössling, 2018). One study looking into river trips found "that the embedding of interpretive messages in settings that are not traditionally interpretation platforms can encourage interest in the natural environment in a wider population" (Harrison et al., 2010, p. 40).

It has also been found that if nature-based tourism providers incorporate environmental learning, consumer satisfaction increases (Kimmel, 1999), giving further reason for operators to explore programming. In multi-day river trips in the Grand Canyon, guided rafting has been shown to improve tourist's environmental knowledge and attitude, with effects lasting a year (Powell et al., 2009).

Knowledge of the environment is the first step in creating environmentally responsible behaviour (Gössling, 2018). It assists in changing behaviour indirectly through enhancing the environmental sensitivity/affect and sense of place among participants (Cheng & Wu, 2015; Kim et al., 2018). Environmental sensitivity/affect refer to a person's ability to feel empathy for the environment and show concern for it (Cheng & Wu, 2014). Aldo Leopold sums up the

essence of the connection to nature by writing, “We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong we may begin to use it with love and respect” (Leopold, 1949, p. xviii).

This connection to the environment, or sensitivity, is seen as the second step in a four-part process to create behavioral change (Cheng & Wu, 2015; Kim et al., 2018).The connection is used by some to gauge the success of environmental education programs, as it proves to be a stronger indicator of environmentally responsible behaviour than knowledge (Franz & Mayer, 2014).

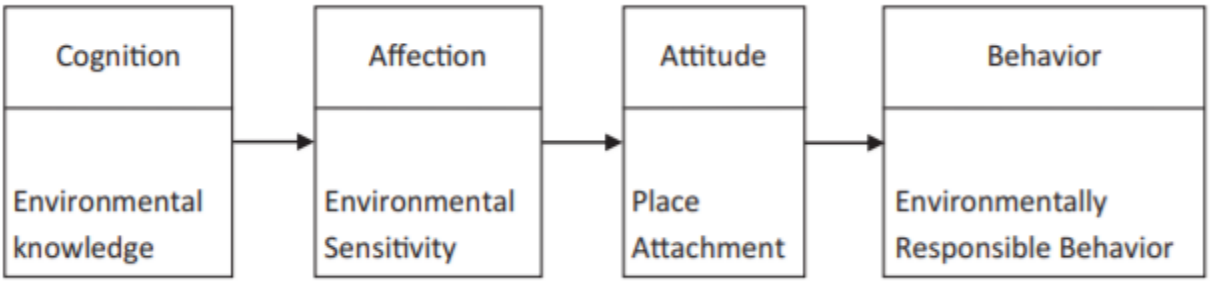

Figure 1. Process Model of Creating Environmentally Responsible Behavior
(Cheng and Wu, 2015)

Lew (2017) tells us that “sense of place”, a term originally taken from geography, is the addition of value to a location. The concept recognises that we as individuals, are able to attach our identities to a specific location (Lew, 2017). This attachment has been used by many as a strong indicator for environmentally responsible behaviour (Cheng & Wu, 2015; Kim & Thapa 2018; Beckman et al., 2017) A 2017 study by Beckman et al., examined whitewater rafting participants on the Ocoee River (USA). They looked into common motivations for rafting and how it affected place attachment and environmentally responsible behaviour. They identified thrill seeking, a desire for natural environment and physical activity as motivators for whitewater rafting. Of these three, thrill and nature were found to have a positive impact

on place attachment and environmentally responsible behaviour. Whitewater rafting's increased perceived risk may actually enhance its impact as a tool to affect attitudinal and behavioural change in groups of tourists (Beckman et al., 2017).

It is clear that rafting is a tool that, if used correctly, can elicit positive change in its participants. The other side to tourism's positive effect on the environment is its ability to partner with conservation while maintaining a sustainable economy. The United Nations recognises this power and has implemented tourism strategies to reduce poverty worldwide. The World Tourism Organisation of the American States (2018), highlight tourism in Tingana, Peru, as a force that has contributed to the preservation of the ecosystem while increasing economic output. The local conservation efforts from the tourism association have been recognised internationally, and local income has increased by $250 USD per month (World Tourism Organisation of the American States, 2018). Tourism, as a whole, has been linked in the European Union to lower CO_2 emissions (Lee & Brahmasrene, 2013). Squamish, a town that in the 20th century relied heavily on the lumber industry for its survival, is now transitioning to tourism as a source of economic prosperity (McLane, 2006). One could hypothesize that this transition may improve the environment, as the area is able to increase carbon capture with the regrowth of forest after logging is reduced.

There is also the argument that tourism allows people to have careers that are not related to resource extraction, an industry reliant on environmental degradation (Bames & Hayter, 1994). However, there is a caveat on the positive impact of the transition from resource extraction jobs. It has been argued in the literature that there are economic weaknesses to tourism. Commonly, low-wages for employees and reliance on the excess wealth of others (those who consume the services), have led to lower living standards and less income security

for individuals who often live in areas with increasing costs (Brown & Swanson, 2004). The limitations for social and environmental benefits are recognised (Cooke, 1982; Dodds, 2012), and while not a focus of this thesis, are worthy of note.

The presence of high-quality river rafting may also encourage preservation efforts. In 1992 a multilateral effort from the BC government, US government and Champagne and Aishihik First Nations saw the creation of the Tatshenshini-Alsek Park. While the park has significance to First Nation and environmental groups, a core element of the protection campaign was to preserve its value as a rafting destination. Its current management plan states that providing "… outstanding wilderness recreation opportunities including nature appreciation, scenic vistas, two of the world's finest river rafting experiences…" (p.11) is part of the core role the park plays (Management Direction Statement, 2001) .

As positive as river rafting may be for environmental protection, rafting in the Sea to Sky relies upon carbon-emitting combustion engines to transport guests to and from the river. In my experience, rafting companies, both in the area and throughout the province, use school buses with large diesel engines, making it impossible to say that rafting has zero environmental impact. Fortunately, these trips often spread the impact of the bus between up to 48 guests. A company's direct impact varies based on location of its base of operations relative to the river. There is also impact from the distances guest must travel to attend the rafting trip. Tourism BC (2009) found that between 29% and 46% of rafters in the province were coming from international origins. I will not be quantifying CO_2 emissions in this thesis, but it is an area worth future research.

The same could also be argued for accounting for the carbon cost of the equipment used in rafting. The sport is an equipment-intensive activity, with gear being subjected to

significant wear and tear, requiring frequent replacement. Much of this gear is made from petroleum-based fabrics, and while not within the scope of this thesis, accounting for the carbon cost of this gear could help provide a more holistic view of the impacts of commercial rafting. Patagonia, an American gear brand, has noted the impacts of traditional petroleum- or limestone-based wetsuits and has made efforts to replace their old technology with plant-based alternatives (Patagonia, 2012). Limestone neoprene under debate as green material (Patagonia, 2012). In rafting, neoprene's carbon footprint is substantial given that provisions for many BC rivers require wetsuits for all participants (BCROA, n.d.).

While large-scale climate change is mostly impacted by GHG emissions, to which rafting contributes, local environmental impacts are also worth studying. Locals noted that in areas of rafting on the Ganges river, wildlife had shifted movement cycles from diurnal to nocturnal, increasing wildlife conflicts. While we can not confirm animal motivation, it is likely that they seek to avoid rafting operations. In this geographic region, damage to riparian vegetation and forest cover was highlighted as the largest negative impact of rafting (Mahapatra et al., 2012; Farooquee et al., 2008).

A study of the Rio Grande found rafting, among other recreational activities, contributed to these disturbances.

- Littering
- Rock moving
- Accidental fires
- Wood cutting
- Trampling
- Campfire effects
- Human waste
- Vegetation disturbance
- Exotic plant introduction

(Fleming, Kunkle & Flora, 1996)

While some of these disturbances are more applicable to overnight impacts, many occur during single-day rafting trips as well. It is apparent that beyond rafting's contribution to greater climate change, without proper mitigation there may be negative local impacts to the environment. In the next section I will examine where the burden of these mitigation techniques currently lies.

Where the Burden Lies

Government and Industry Policy

Commercial River Rafting in British Columbia is overseen by two governmental bodies: Transport Canada and the Provincial Ministry of Forests, Lands, and Natural Resource Operations (FLNRO). While the Ministry of Tourism may offer support, they provide little regulation of the industry and their frameworks remain vague and lack specific best practices. Transport Canada is the regulatory body that, through the Special-Purpose Vessel Regulations, set standards for vessels and ensures that river rafting operations meet a minimum safety standard (Special-Purpose Vessel Regulations, 2019). Primarily, these regulations outline equipment and basic safety training required for rafting operations to operate on the river. FLRNO, the other government body with power, focuses on land use and the tenure process. It creates the requirements for commercial operators to use public lands to operate. All commercial operators make use of public lands by operating upon rivers. The tenure process is done through the *Adventure Tourism Policy (2015)* (ATP), which requires commercial recreation operators to create a Management Plan for their intended activity, and it is through the ATP that the Ministry of Environment has included guidelines.

The *Wildlife Guidelines for Backcountry Tourism/Commercial Recreation in British Columbia* (2006) is currently the "best management practices" document created by the government (Ministry of Environment, 2006). To its credit, this document has identified specific desired behaviours based on ecosystem type and activity. Rafting falls under a larger category of boating, while most directives pertain to motorised craft. These actions focus primarily on ecosystem and wildlife protection but also comment on water and air pollution, with indicators and measurement strategies. Enforcement of these guidelines is possible through the *Adventure Tourism Policy* (2015) and tenure contracts. I have been found no evidence in the *Environmental Offenders Registry* that the government has made an effort to measure or enforce practices by commercial rafting operations (Environmental Offenders Registry, n.d.).

In BC, the majority of rafting operations in the province are members of the British Columbia River Outfitters Association (BCROA), a society that sets voluntary best practices for most of the industry. The BCROA promotes higher standards than Transport Canada for safety and environmental protection, and while the BCROA has nothing to do with tenure, it creates best practices to supplement the government's guidelines. These best practices unfortunately remain outdated (2004), and do not attempt to integrate rafting into the global effort to reduce climate change. The BCROA best practices do, however, focus their efforts on minimising pollutants, site impacts and disturbance of wildlife. The ineffectiveness of this non-governmental association is its lack of legal power. I contest it should not be discounted as it remains a voice to its members. All the rafting companies in the Sea to Sky Corridors are members of the BCROA.

While both industry and government have created applicable standards, with little enforcement, practices are left up to the choices of operators. I will examine specific best practices later in this document.

Guide Responsibility

In the section on *Tourism's Impact on the Environment*, we saw that much of the positive impacts are determined by rafting's ability to affect change in its consumers. One could easily argue that the center of this practice is the guide team. I acknowledge this and find that it is a prudent area for further research but is out of the scope of this thesis. I have chosen to examine business practices as I align with the previously highlighted ethical argument, that it is the business owner that bears the higher duty, for they have considerably more power (Banks, 2013). Businesses also have a duty to maintain the training of their guides.

The literature suggests that river guides' leadership and ability to effect change in the guests' perceptions of the environment is positively affected by interpretive training (Lackey, 2016; Harrison et al., 2010). Lackey goes on to elaborate that company culture has great influence on the practices and efficacy of interpretively-trained guides: "… graduates may choose to or even be coerced into behaving contrary to their training when faced with such pressures" (Lackey, 2016, p. 40). The pressures, she explains, may come from guests, fellow guides or management. Lackey sees role modeling as important to the guide's training and practices of environmentally responsible behaviour. So, not only can a company exert its power positively by training its guides, it then has the ability to reinforce these teachings with work culture and role modeling. Guide-centered research in the Sea to Sky is lacking and could be an opportunity for continued study.

Summary

It is clear that the literature supports assertions that climate change has negative impacts upon commercial rafting in the Sea to Sky, and that there are both a philosophical and a business cases to be made for rafting companies to take measures to mitigate the acceleration of climate change. The literature indicates that rafting does harm to the environment in which it participates; but rafting also appears to have the ability to effect positive change, primarily by inspiring environmentally responsible behaviours in its participants. There appears to be little government oversight around the environmental impacts of British Columbia's commercial rafting.

CHAPTER 3: METHODOLOGY

Primary Research Question

The literature suggests that rafting has the potential for positive environmental impact depending on the practices of the operator. I chose to examine the region in which I work to see what was currently being done by rafting companies. From this, I have created the primary research question of: What are Sea to Sky rafting companies doing as environmentally responsible behaviour and why?

Philosophical Approach

The two-part nature of the research question could be explored using many philosophical approaches found in the social sciences. The initial "what is being done" could be seen as an objective measurement through the lens of positivism, a research philosophy that seeks truths through a more traditional scientific perspective. A naturalist approach would fixate more heavily on the "why", as it helps construct what is happening through the lens of human perspective (Rubin & Rubin, 2012).

I find my philosophy as a researcher aligns more with a naturalist approach. I am unwilling to accept that researchers of human actions are able to be unbiased. I find it easy to accept that all data I create will be applicable only in the context in which is was created, and that universal truths are not the purpose of my work. I do not feel that philosophies need be absolute in their adherence, but I do feel that quantitative data will be insufficient to deepen understanding, and so I have adopted a qualitative method. It should be noted that objectivity does enter my research. Through comparison, the findings move beyond understanding into the improvement of actions.

Methodology

To best answer my research question, I considered several qualitative methods. I found myself attracted to both phenomenology and grounded theory. Phenomenology is a research approach with strong philosophical underpinnings (Probert, 2006). Husserl, one of the key contributors to the creation of phenomenology, felt that information about objects outside ourselves is not independent of our perception of them. He believed "to arrive at certainty, anything outside immediate experience must be ignored, and in this way the external world is reduced to the contents of personal consciousness" (Probert, 2006, p.43). This methodology treats realities as phenomena and attempts to investigate through the perception of others using in-depth interviews.

Grounded theory, originally conceived by Glaser and Strauss, is a pragmatic approach to research in which problems are addressed by qualitative data collection (1967). Theories are derived through an iterative process of collecting information and comparing it through coding to other results (Age, 2011). This methodology is open in nature and avoids using a framework, allowing for its theories not to be disproven but to evolve. In its philosophical underpinnings, grounded theory has both positivist and naturalist roots (Age, 2011).

My methodology derives from phenomenology as it accepts a level of subjectivity (Probert, 2006). "Environmentally responsible behaviour" is such a nebulous concept that its meaning may differ immensely between participants. It often carries deep emotional attachment and has been studied by others to create great depth of understanding (Braun, 2012; Watkins, 2017). Phenomenology focuses on an "understanding… from the perspective of the people involved" (Groenewald, 2004, p. 44). In my research, I use this idea to explore the motivations of rafting operators. I aim to find out what influences decisions around

environmentally responsible behaviour. However, I stray from phenomenology in the objectivity in which best practices will be analysed, for that I turn to an approach derived from grounded theory.

Grounded methodology lends itself to my research analysis. Where phenomenology looks at the description of experiences, grounded theory allows for an explanation of these environmentally responsible behaviours in comparison to each other and the literature. In my discussion, the conceptualisation present in grounded theory allows me to identify room for improvements and actions I feel that the participants have missed (Ng & Hase, 2008; Glaser & Strauss, 1967). It has been noted that this dynamic, theory-generating approach lends itself to business, which is what originally brought it to my attention (Ng & Hase, 2008). By researching specific best practices after the interview process, I attempted to keep the open-minded approach that grounded theory requires (Probert, 2006). Where my research deviates from grounded theory is twofold. First, grounded theory succeeds by being constantly comparative and iterative (Age, 2011). Because of the constraints of scope and an attempt to keep this work reasonable for an undergraduate level thesis, there will be no iteration in the research process. Second, is the formation of theory. While I may create suggestions at the end of this piece, I feel the small number of interviews makes it inappropriate for me to create theory.

What I have created for methodology seeks to answer the primary research question: What are Sea to Sky rafting companies doing as environmentally responsible behaviour and why? This led to the development of theming questions for participants: How are companies encouraging environmentally responsible behaviour in their guide and guest experiences? Does environmental concern affect business practice in the Sea to Sky rafting industry, and if

so, how? These questions were given to participants in advance to prepare them for the interview. The interview was that of a semi-structured conversation, with prompt questions to ensure depth of response. A list of the prompt questions is included as Appendix B. Participants were encouraged to lead conversations toward areas they felt were of importance, and to tell stories to provide me examples. The interviews were then transcribed verbatim. I kept personal notes while listening to the transcriptions and coded each document for themes as well as supporting examples. From this data I have created summaries of findings as well as my own interpretation as to where the commercial rafting area is at in comparison to the literature. As important as my background is to this research, so is the background of the companies. I anonymized my data only after analysis as I believe it helped inform my discussion.

Geographic Location

The primary research of this study focuses on the practices within the Sea to Sky; a term referring to the geographic area of the Sea to Sky Natural Resource District. This 1.1 million hectare area lies north of Vancouver and surrounds Highway 99 as it passes through Squamish, Whistler and Pemberton (Ministry of Forests, Lands and Natural Resource Operations, n.d.). The Sea to Sky is part of the Destination BC's Vancouver, Coast and Mountains tourism region. Rafting has taken place in the region since the 1990's and the municipalities of Squamish and Whistler are renowned for the adventure offerings. (*Canadian Outback Rafting*, 2018) A map is included as Appendix C.

Participants

The original aim of this research was to interview all three companies in the Sea to Sky. I was unable to reach all three in time to complete the study. With guidance from my supervisor

I chose two additional operators from outside the Sea to Sky to provide comparison for operators within. I chose these operators based on my access to them and regional variation.

The participants of this study are demographically, nearly-homogeneous but the companies they belong to and their positions within them, are much more varied. Participants were owners, managers or CEO's of their operations. Some companies have guide teams of twenty or thirty, while others have less than five. Interviewees range from over twenty years in the industry to relative newcomers brought in by their company for a fresh perspective. The amount of on water time by participants also ranges, some guide while others take a more office-based role. Most participants were university educated, while others had positions within the larger tourism industry that assisted in informing their position. Overall, the participants were selected because they held power in their organisations.

Influence of Current Events

The interviews in this thesis were done during a global pandemic. All participants were in lock down and, with social gatherings banned, the prospect of rafting in the upcoming summer were appearing increasingly bleak. Responses should be interpreted with the knowledge that all participants were facing a large degree of economic uncertainty.

CHAPTER 4: ANALYSIS

The following segments are broken into themes that emerged in the interviews. Some will support a type of business practice; others will speak to motivations operators feel around the environment. Quotes from interview transcripts are used as support. Quotes have been edited for clarity by removing repeat words, broken sentences and distracting filler such as "you know?". Editing was also done to ensure anonymity.

Practices

Localised Impact Mitigation

It appears from the interviews that all rafting operators were aware of Leave No Trace-style principles. Three of four mentioned picking up litter as a constant practice. Companies in and out of the Sea to Sky area saw the effects of modelling behaviour on guests with litter pick up.

> "When we are rafting, touring down a river, if we stop for lunch, there is nothing that absolutely gets left behind. We leave an extremely clean footprint, and that's mandated to our guides right through to our guests..."

> "We are constantly picking up garbage and little bits and pieces of things that shouldn't just be on the ground. And we do make sure that our guests do see this … 90 percent of the time we will find our guests, in fact, picking up pieces of garbage..."

Others took steps to protect the ecosystem around them. One company paid staff to remove invasive flora from sites in which they operate. One, in the Sea to Sky, highlighted the importance of salmon protection in the area.

> "Anywhere that our vehicles go, we pay our guides a couple of days a year [to] go and pull the [plant that damages the local ecosystem] before it flowers so that we don't become transporters of this."

> "When the salmon run comes up every year, I make a point, because we do have new-to-us staff, of saying, 'hey, we shouldn't be walking the side streams, client shouldn't be going anywhere near the fish'"

Leave No Trace (LNT) principles offer a healthy guide for anyone in the wild. While companies shared many practices, in regard to official LNT principles, only one mentioned adherence.

> "We continuously dismantle fire rings and rehabilitate the land. We would probably do that five times a year to really work in with Leave No Trace principles and not have the landscape scarred with five fire rings."

This practice of fire ring dismantling does not address wildfire prevention but the disturbance of the natural environment. Another issue, beyond varying guidelines on practices to protect local ecosystems, is a lack of measurement. None of the companies mentioned the monitoring or recording of what their guides are practicing; a problem highlighted by one of the Sea to Sky companies:

> "You've got that human element, so you can have all the best practices in place and still have the human element where it just doesn't get done properly"

Guide Empowerment

Two of the companies spoke to empowering guides as a way that they practiced environmentally responsible behaviour. This primarily included paying guides to pursue their

own sustainability projects on company time. Companies who highlighted this were found both in the Sea to Sky and outside the region.

> "Last year we had a couple of guides that are very invested in sustainability and one of those guides made a separated waste station for us … the company sponsored this idea, but it was an initiative of one of the staff to help us with our sustainability goals."

This theme of guides bringing environmental passion and action to rafting may be due to hiring processes brought up by all companies. Both companies in the Sea to Sky and one of the outside companies spoke to seeking environmentally-conscious people to work for them.

> "[Speaking of staff who push sustainability] … and to be honest with you, that's who we want to hire. That's how we want it in our DNA … It's part of our strategic vision for our business"

> "But we just decided as a company, this is a personal initiative [environmental responsibility], not just for myself. It bleeds throughout the entire company. So, yeah, we've gone above and beyond and tried to take a leadership role in this."

> "It's just that expectation in the hiring process and the initial training process with having an understanding of the environment around you. When you have that understanding, I think you're much more likely to make intelligent decisions on how to treat our environment."

A potential negative effect of relying on hiring to create environmental stewardship is a potential for gaps in the environmental culture of companies. While I do not have quotes to

represent this, and motivations will be written about later, I was given the sense that green innovation was left to guides in some companies without ideas coming from higher up.

Interpretive Programming

In the literature review surrounding "sense of place", interpretive education proved valuable to improving environmentally responsible behaviour in guests. Interpretive training was spoken about by three of the four rafting companies. Two of those had specific information that new guides were given in their training process, the third had offered it to interested guides.

> "[There is] interpretive information that we provide at the start of training for everybody or leading in, post-hire. We have a couple of sheets with that and that talks a lot about the local area as well, the local flora and fauna ... and then beyond that, we do [staff training] days where we go to the cultural center and go to the gondola and the mining museum…"

One of the companies outside the Sea to Sky includes interpretive knowledge in their thirty-seven page handbook. They follow this with a structure for new guides to follow while speaking on the river.

> "We have suggested programming on the river. So, certain areas where we would stop and talk around certain features. This is a suggested framework for new guides. But … the guides have agency to follow that to the tee, or to not follow that."

The concept of "guide agency" above is mentioned by all three of the companies that mentioned interpretation. All of them felt that unique trips put on by their guides were more important than dissemination of environmental knowledge. It is apparent that operators interviewed feel this key element of rafting was important to preserve, and that guide agency

in subjects of conversation led to better trips. One interviewee feared that if trips became too programmed, guides may fail to live up to expectations held by guests.

> "It's not done in a structured fashion, where we lead guests to think that they're going to be on a, a heavily programmed [trip] in terms of culturally or environmental ethic experience. We let that sort of speak for itself as the day unfolds. So, we do it for two reasons: One is there's the variability of service, right? Some guides will have stronger knowledge, and some will have less. So, we don't … set the expectations too high if we can't deliver, and I guess the other part … [is that it's] better [to] overwhelm than to underwhelm."

Supporting External Causes

Both companies within the Sea to Sky made supporting external pro-environmental causes part of their business practice. One is in the process of joining Protect Our Winters, an organisation that advocates for environmental protection, and the other donates thousands of dollars to many causes, often in the form of trips.

> "We're talking two to three thousand requests for donations a year...we probably approve more than 10 percent of those. So, we're looking at what would be into the almost hundreds of thousands of dollars and free rafting that we give away every year..."

Now, not all of the free rafting or donations mentioned above go to environmental causes. Many rafting companies spoke to other social initiatives that they support, but a portion of these go to environmental causes including wilderness acquisition and protection. It is also worth noting that, when asked if any of the companies assist scientific endeavors through

wildlife monitoring (a practice done by heli-ski operations), none said they currently report wildlife numbers.

Carbon Neutrality and Energy Efficiency

Only two of the companies interviewed spoke to actively trying to reduce their carbon footprint. An operator in the Sea to Sky has hired an internal team to evaluate and implement green initiatives. They are focused primarily on reducing carbon emissions and lowering their general consumption by reducing office space and converting their vehicle fleet to electric alternatives.

> "Everything we're doing right now is 'how many office spaces do we have? We need that many office spaces. You know, how many vehicles do we need?' I'm getting a call after this, about potentially not having fossil-fuel vehicles in the summer."

A large decision by this company that should be highlighted is the removal of one of the rafting offerings as they can not justify the distance travelled by bus to get to the river.

> "We've made some decisions internally where we're going to operate our rafting locally. We're not going to take people on buses, you know, 60-plus kilometers to get to some whitewater that might be a little more challenging. But we just made the conscious decision to keep our rafting activities local."

The company working on carbon reduction outside the Sea to Sky has taken a different approach by beginning to convert their new base area to off-grid solar power, to plant trees on their land and to create carbon-neutral product offerings to compliment their rafting.

> "Our vision is to make [the new base] a carbon-neutral, sustainable-camping type area. So, we've rehabilitated some of the structures and we've got quotes for solar

power and put a switch in … that would allow us to shut off from the main B.C. hydro grid. We've got a quote and we know what panels and everything we want to put up on the main building. So, the whole idea is that the main commercial recreation area will be fully, 100% solar-powered."

It should be noted that both examples of carbon reduction are in the planning and research stages. I find no reason to doubt the intentions and future actions of these companies, but I feel that these initiatives can not be counted as current practices.

External Certifications

None of the companies interviewed held external green certifications. Sentiments around the subject ranged. One company was unaware of the certifications, two felt that they were not important to their own initiatives and another went as far as to voice distrust in green schemes:

"I find a lot of them are kind of like the certified organic, if you jump through these hoops and pay us money, you'll be certified organic… Sometimes we'll get three different companies in a week emailing us, saying they're the certified green or whatever. And you're kind of going, 'OK?' 'Let us come do an inspection on your property and we'll give you our certification' [interviewee mimicking green certification companies]. … I'd rather just go do the stuff without having somebody else come in and say, 'oh, yeah, you're certified now. You've paid your money. You get this green leaf or whatever.'"

The operator questions the legitimacy of green certifications from companies that make money through charging for membership. The same operator described them as a “marketing ploy”.

Motivations for Environmentally Responsible Behaviour

It is the Right Thing to Do

In every interview, participants referred to environmentally responsible behaviour as the “right thing”.

> “…we feel like it's the right thing to do. I think that the benefits will follow through demand over time.”

> “This is actually a valuable thing to do…not just financially beneficial, but beneficial, this is the right thing to be doing.”

> “So, you know, it's not because we're feeling pressure from the government. We just feel it's the right thing to do.”

> “I wouldn't say that there's any sort of policies within the company at all. You know, just doing the right thing.”

This concept of what is “right” implies that all operators feel there is a moral aspect to looking after the environment, and in my interpretation of the interviews I saw desire in all operators to be environmentally responsible. When areas of environmentally responsible behaviour that operators had not addressed in practice came up, their tone often portrayed what could be interpreted as an and edge of discomfort or shame.

Place Connection and Pride

Several of the companies spoke to looking after their operating areas with a sense of pride or being inspired by where they live and work.

> "Because we sit there looking at this environment that we live in and [look] how beautiful it is…. If I can play a part. If each one of us can play a part in being better. You know, we'll see a marked improvement."

> "…I care what my guests see and experience and walking them through a public space that is in a beautiful setting but filled with litter is not really my ideal place to go and visit and see or work."

Focus on the Financials

Interviews highlighted that environmentally-conscious motivations for companies may be diminished if operators hold concerns around cost and financial viability. The three smallest companies (based on number of staff), were concerned that investment into larger projects like carbon reduction or energy efficiency may affect their ability to operate.

> "If at the end of the day we can't pay our employees and we've got close our doors, then it's all kind of for naught. So, it has to be sustainable."

> "Well, we often use the triple bottom line idea of sustainability, right? Social, environmental and financial. At the end of the day, if we don't have financial viability as operators, then it's really hard to invest in those other areas of finance, of environmental and cultural sustainability."

Two of the three who mentioned a concern around their financial viability suggested that their motivations to invest in green initiatives would rise if the government was willing to subsidise the cost.

> "[company motivation could be] driven by government incentives or … some sort of subsidy for doing something that's going to improve the environment or…lower your carbon footprint."

> "…if a government is really interested in sustainability, moving from buzzword to action into actually implement[ing it] in society as a common piece of what we do. In some way that needs to be subsidized upfront, so that we can access funds to make it happen and then either repay that back over time or as grants so that way it's truly happening cause otherwise, financial sustainability is always going to take precedence…"

Competitive Advantage

As a counter point to concern for the bottom line negatively impacting motivation for environmentally responsible behaviour, the companies who recognised a competitive advantage in sustainability practices were the same two implementing initiatives to reduce their carbon footprint.

"[Sustainability initiatives are] …a way to sort of differentiate ourselves from our competitors, and when people start to come [to the area], we have a point of difference and something we can market to the consumers. …. I think, coming out of this, there's going to be a lot of repositioning by a lot of companies and that we want to be the forefront."

"I think there's … a subsection of maybe 20 percent of the guests, [for whom being a green provider] really would make a difference in choosing…But I think more can be persuaded. I think it does lead to a bit of competitive advantage or strategic positioning."

The two companies who are not currently working on projects to reduce their carbon footprint felt that guests would not choose one day-rafting company over another based on a green image.

> "they're not choosing our company because of these protocols [local environmentally responsible behaviour] that we have created."

> "[talking about using external certification in marketing] I don't see it was really positively impacting people's decision making within the competition in Squamish or the Sea to Sky Corridor."

What Oversight?

In all interviews, participants were asked if they felt motivated by FLNRO, the department responsible for fisheries, lands and natural resource operations, to include environmentally responsible behaviours into their business practices. This question was met with a consensus that FLNRO had little-to-no influence on business practices. One interviewee seemed unaware of FLNRO's authority.

> "[when asked about motivation from FLNRO and the BCROA] It definitely doesn't come from FLNRO and it definitely doesn't come from BCROA."

> "…specifically, in the Sea to Sky, I don't see a lot of policing, and I would say I would actually welcome a bit more policing of the tenure system. If we … did not have our own environmental consciousness or social consciousness, I would say that there would

be very little to deter us from not following best practices other than the potential of our employees or guests calling out poor behaviour…"

When asking about the influence of the BCROA and their best practices, it was made clear to me that the operators within the BCROA (three of four), felt the organisation was best to focus on advocating to government on the industry's behalf and maintaining safety standards.

Summary

Companies both in and out of the Sea to Sky practice varying degrees of environmentally responsible behaviour. Below is a table used to compare findings inside and outside the Sea to Sky.

Interesting connections may be made based on analysis.

- Those with Carbon Neutrality and Energy Efficiency practices were also those motivated by Competitive Advantage.
- Localised Impact Mitigation was done by all but varied immensely in practices quoted.
- The companies in the Sea to Sky participated in Supporting External (environmental) Causes, while those interviewed from outside the region do not.
- Geography does not appear to have an influence on motivation.
- The government does not influence environmentally responsible behaviour in rafting operations.

The practices and motivations listed are not comprehensive, but are primary themes found through interpretation.

CHAPTER 5: BEST MANAGEMENT PRACTICES

Simmonds (2012) defines best management practices (BMP) as "the meeting point between environmental conservation and practical operating procedures" (p.8). It is this balance of environment and business that industry, government and operators strike to find. In this section I will go over applicable BMP documents. Current writing that applies directly to Sea to Sky rafting is found through the BCROA and Ministry of Environment documents. Because they are dated, 2004 and 2006 respectively, I will include documents from other countries and adventure industries to create a more holistic view of best management practices that could apply. I will focus this section upon day-use rafting, and so will not be commenting on areas such as tenting, fires or cooking.

Current Writing on BC Rafting

Ministry of Environment

The Wildlife Guidelines for Backcountry Tourism/Commercial Recreation in British Columbia (2006) separates is objectives for boating into five categories.

- Degradation of soil, air and water quality
- Integrity of vegetation communities
- Direct disturbance of wildlife
- Integrity of fisheries resources
- Special management (for specific values of concern)

Many of the practices the document lists are directed at motorised boats, but important practices for all boaters include: the protection of species at risk through identification and avoidance (Harlequin ducks are noted); elimination of exotic species introduction; the reduction of pollutants by using biodegradable cleaning products and proper disposal of waste;

the avoidance of wildlife in general, including nesting and spawning sites; and the avoidance of vegetation destruction along the shoreline.

This document is beneficial in its creation of both best management practices as well as measurement criteria and upper limits for change in the ecosystem. It looks at the reduction of air and water pollution through more efficient or alternative engines but fails to speak to fighting climate change.

The BCROA

The BCROA *Best Management Practices* is likely the most specific document to apply to whitewater rafting operations. The association separates its document into five categories as well; of these, only the first two focus on the environment.

- Site Impacts
- Wildlife Impacts and Interactions
- Cultural Impacts and Considerations
- Safety
- Etiquette

I find that this document adequately covers waste management, site hardening, general wildlife avoidance (bear focused), and the reporting of wildlife observations. It uses education of guests to encourage proper behaviour around wildlife but does not speak to greater environmental issues. I feel that the BCROA has the voice to address larger sustainability practices and fails to do so with the focus of this document being site-specific. No mention of being able to identify species at risk or exotic species was found in this document (*Best Management Practices | BC River Outfitters Association*, n.d.).

Rafting Practices Internationally

International Rafting Federation

The International Rafting Federation (IRF) is the most broadly-recognized certifying body in the world for raft guides. While much of their focus is promoting rafting as a sport, they claim to be "committed to protecting the rivers of our planet" (*What is the IRF*, 2010). The IRF's website has a section dedicated to sustainability, and they've created an action plan for rafting events. The planning document encourages IRF events to limit waste, recycle, support local business and use their platform for environmental advocacy. These areas have detailed event best practices but lack application to daily rafting activities (*Green Events Action Plan*, 2019). The IRF is currently working on developing a Rafting Outfitters Accreditation with standards for sustainability practices. While not yet published, this document is likely an improvement to their current sustainability page that singles out paper usage as a leading contributor to climate change. (*Sustainability – ideas and links*, 2013) The following two countries, USA and New Zealand, were chosen for further research due to a common language and the prevalence of commercial rafting.

USA

Best practices in the United States are found mostly in National Park regulations. Groups like America Outdoors, who provide a voice for much of the industry at a national level, often fail to include environmental recommendations in their resource documents. America Outdoors itself has 150 documents aimed to assist operators, and none of them are directed at improving environmental practices (*Documents | America Outdoors*).

One of the highest standards set in the United States is the regulation of the Colorado River through the Grand Canyon. The commercial regulations are no longer available publicly,

but their non-commercial regulations paint a picture of stringent measures to protect their ecosystems. The documents address environmental protection in the areas of: refuse, the use of soap, portable toilets, fires, multiple trails, and campsite impacts (Grand Canyon National Park, 2020). The broader management plan for the area addresses not only local impact mitigation but a strategy to create deeper environmental knowledge for any visitor of the area. Tight regulations, paired with a permit system that limits the number of visitors on the water, make commercial rafting practices in the Grande Canyon some of the most environmentally-conscious in the country (Grand Canyon National Park, 2006).

New Zealand

New Zealand's Conservation Department has created environmental care codes for many of its adventures. The care codes for day rafting focus on appropriate site use, avoidance of vegetation destruction, waste management and avoiding contamination through seed and pathogen transport. It is generally less developed than the BCROA's (*Rafting care code*, n.d.). The Maritime authority in New Zealand takes an approach similar to Transport Canada in focussing upon the safety standards of the sport and avoiding environmental considerations (*Maritime Rules Part 81: Commercial Rafting Operations*, 2019). The New Zealand equivalent of BCROA, the New Zealand Rafting Association, has no mention on their website of environmentally responsible behaviours or best management practices (*New Zealand Rafting Association: White Water Rafting New Zealand*, n.d.).

Practices of other Adventure Tourism Industries in BC

Sea Kayaking

BC sea kayaking has two associations competing for regulation, the Sea Kayak Guide Alliance of BC (SKGABC) and the Association of Canadian Sea Kayak Guides (ACSKG).

Both associations have set best practices for their guides but have chosen to focus upon local impacts. The SKGABC has created best practices based on Leave No Trace principles where the ACSKG has created practices under the categories of Etiquette, Wildlife, Camping and Seafood (*Low Impact Best Practices*, 2007; *Minimum Impact Standards—Association of Canadian Sea Kayak Guides*, n.d.). Simmonds claims in his investigation of BC sea kayak guide practices that there is little research into compliance. Because associations have chosen to target individual guides, he suggests that business-level training and accountability would further the sought-after environmentally responsible behaviour (Simmonds, 2012).

HeliCat Canada

Similar to the BCROA, HeliCat Canada, formerly the BC Helicopter and Snowcat Skiing Operators Association (BCHSSOA,) is an adventure-tourism industry association. Where the BCROA concerns itself with rafting standards, HeliCat seeks to set the standards of the mechanised ski industry. HeliCat goes above the BCROA's suggested best practices and has created a well-researched document outlining minimum environmental standards that its members must maintain to keep their affiliation. The document looks both at local-level impacts upon wildlife, vegetation and environment, as well as emission reduction and energy efficiency. While the industry itself centers around the use of polluting machinery to ski, it is apparent at the level of detail put into their best practices document, that they are making efforts to reduce their environmental impact. Three elements of the document that could be directly transferable to rafting practice are the requirements to train staff in wildlife knowledge and Leave No Trace principles, the reduction of energy usage both infield and at a base, and the importance placed on research surrounding affected wildlife. This document outlines specific

minimum practices, relevant government regulation, as well as suggested practices if operators want to exceed the standard (Butler et al., 2003).

To further their commitment to maintaining relevant best practices, HeliCat has created a Wildlife and Environmental Research Fund to assist outside parties in investigating new best practices (*Wildlife & Environmental Research Fund*, n.d.).

Leave No Trace

Leave No Trace principles are abundant in industry standards. Created in the 1960s by the US Forest Service and National Outdoor Leadership School ("History of LNT - Leave No Trace Center for Outdoor Ethics," n.d.), Leave No Trace is a non-profit organization with objectives based around promoting their seven principles:

- Plan Ahead and Prepare
- Travel and Camp on Durable Surfaces
- Dispose of Waste Properly
- Leave What You Find
- Minimize Campfire Impacts
- Respect Wildlife
- Be Considerate of Other Visitors

("The 7 Principles - Leave No Trace Center for Outdoor Ethics," n.d.)

The academic world also accepts these standards using them in studies such as Blye's (2016) investigation into what Canadians are doing in two provincial parks, and Vagias and Powell's (2010) look into backcountry visitors' attitudes towards environmental best practices. Both studies found that even though there was an awareness of the principles, further information about specific practices was needed to further positive behaviour (Blye, 2016; Vagias & Powell, 2010). While these principles create a foundation for more activity-specific best practices, they too fail to address climate change and adventure's contribution to it.

External Certification

Tourism, like other industries, has been subject to claims of "greenwashing". Barry and Frankland use "greenwash" (a derivative of whitewash) to describe organisations' attempts "to cover up environmentally and/or socially damaging activities, sometimes just with rhetoric, sometimes with minor or superficial environmental reforms" (p. 253, 2014). Hotels in tourism have been singled out for their cost-cutting programs disguised as an environmental concern. Examples of this are the common signs found in hotel rooms requesting that guests reuse their towels. This minor benefit to the environment is highlighted while the larger reality of cost savings for the hotel is hidden (Rahman et al., 2015). Consumers who became skeptical of green practices were found to be less likely to return to hotels that used them.

One proposed solution to this false marketing is external certification. Organisations such as Green Tourism or the Global Sustainable Tourism Council offer accreditation for tourism operators who meet or exceed the criteria. Problems with external accreditation are variability in an organisation's ability to audit its members, as well as low market penetration and recognition. If consumers feel that not everyone has been evaluated and that unaccredited operators may offer similar services as accredited ones, the effectiveness of the tool diminishes. Transparency and government backing are also crucial to the success of ecolabelling as consumers must gauge the credibility of varying green schemes (Buckley, 2001).

CHAPTER 6: DISCUSSION

A Shared Philosophy

There is a consensus amongst the rafting community interviewed that there is an ethical component to protecting the environment. This mirrors the message of Leopold's *Sand County Almanac*. This underlying motivation towards environmentally responsible behaviour may not be as strong as Banks' philosophical argument that we have a negative impact until we accept and act upon the burden to improve the environment (2013). This stronger implication may be challenging to accept for operators who have not taken action to mitigate their broader impact. My research has led me to believe this perspective of duty to the collective is what companies will need to adopt to create real change.

Where is the bar?

Currently, there is no writing in BC's provincial rafting community to set best practices that address carbon neutrality or energy efficiency. We have known about humanity's capacity to perpetuate systems of climate change for decades (Catton, 1980); standards must be set at all levels if rafting is to address these threats. The level of trust instilled in the BCROA suggests that it would be better suited to setting standards than external green schemes. While the BCROA may currently focus on safety standards and advocacy on behalf of its members as its mandate, rafting needs to find a unified voice to improve its environmental impact. I contend that rafting companies may improve their local environmentally responsible behaviours by organising as regional groups to address the specific impacts as well as set standards. This brings to light further issues, such as policing and measurement, which may fall to operators to do as little effort has been demonstrated by the government.

Is the Sea to Sky different?

While the number of interviews, provide insufficient evidence to make generalisations, it is my impression that operators in the Sea to Sky share similar sentiments to those in other parts of BC. The practices within the area had as much variation as the companies outside of it. With the exclusion of addressing the salmon run, local-impact mitigations appear to mirror other practices. Given that the rivers in the Sea to Sky rely on snow and glacier melt (Stahl & Moore, 2006), and the prediction that we will see increasingly-warm summers (Whitfield et al. 2002), there will likely be larger impacts to rafting in the area than other regions of BC. I would suggest that the Sea to Sky has an elevated justification for mitigation of climate change and may need to begin researching adaptation techniques to remain viable.

Guide Agency vs Interpretive Programming

There is a conflict between the stated benefits of environmental education for guests and the desire for operators to give guides agency. A positive experience is essential to effecting change in guests, (Harrison et al., 2010), so guide agency and competency remains valuable. Trips with no interpretive portion represent a loss of potential positive influence. While avoiding explicit programming, operators may be able to create a positive environmental impact by creating expectations around guides being able to provide educational interpretive experience as a standard akin to safety. Operators could consider this as an environmental program with no investment costs.

Addressing the Bottom Line

Solvency and being able to continue to operate appeared as a larger concern for three of four interview participants. While these operators see investment in green initiatives as

potentially hazardous to their fiscal bottom line, the literature (Loomis, 2008; Shrestha & Schoengold, 2008; Schoengold et al., 2013) surrounding the impacts of climate change suggests that failure to slow rapidly-changing climatic processes may also have a devastating effect on the viability of commercial rafting.

This is reinforced by a problem faced by many who attempt to curb climate change. The effect of positive individual practices on global systems is difficult to measure, while their cost is explicit and upfront (Eyraud et al., 2011). This leads many to fail to justify the cost of green initiatives. The World Economic Forum (WEF) recognises this at a global scale but asserts that if business is to grow sustainably "greening investment at scale is a precondition" (*The Green Investment Report*, 2013, p.6). I assert that the operator needs to reframe their distinction between environment and fiscal bottom lines. Green investments are financial invests.

Support by Government

The sentiments felt by rafting operators that green initiatives will require government support is also backed by the WEF, which found that "targeted use of public finance can scale up private financial flows into green investment through measures such as insurance products and incentives, combined with the right policy support" (*The Green Investment Report*, 2013, p. 7). It should not be up to operators alone to create a new standard for the industry. These often small-to-medium-sized businesses require capital to improve their practices. If the government recognises that climate change is a present threat, then cooperation between the private and public sector will accelerate this industry's ability to improve. FLNRO appears to be ineffective in its ability to adequately monitor land use, leaving the burden to individual operators.

The Indigenous Perspective

The current British Columbian environmental-political landscape should not be commented upon without addressing the Indigenous perspective. This thesis intentionally avoided the subject to keep the scope smaller, but evidence of the increasing Indigenous influence has coloured much of my schooling. As of summer 2014, the Tsilhqot'in Nation, north of the Sea to Sky, now has complete control over commercial recreation and land use in their territory. Commercial operators must now abide by their laws concerning environmental practices (First Peoples Law, 2014). Operators were forced to stop operations for a period of time during the transition to a new government. For operators like Rivers, Oceans and Mountains who have continued to bring in tourists for trips on the Chilko and Chilcotin rivers, it means having a new landlord with a different set of values (*Chilko Lake operators appeal to governments for help*, 2017). The liberties afforded by FLNRO's lack of oversight may not be granted to operators if FLNRO no longer has jurisdiction in the area.

While potentially challenging to business practice, this integration of the Indigenous perspective may prove valuable in encouraging environmentally responsible behaviour. When asked about green initiatives, one of the interviewees outside of the Sea to Sky spoke to the efforts they were making to include Indigenous culture on their trips. The operator felt that this traditional knowledge incorporated elements of strong environmental consciousness. They were proactively creating a relationship with local first nations and were providing cultural exchanges for their guide teams.

This opportunity inherent in the inclusion of an Indigenous perspective is extremely applicable to the Sea to Sky. The name of the town of Squamish is a Coast Salish word, and there are multiple First Nations in the area with a strong presence in the community. It would

suggest that rafting operators in the area may be wise to commence building relationships with these groups and explore the incorporation of their values. I was fortunate enough to live on the Squamish First Nation's reserve last summer while guiding, and I can say anecdotally that there is interest from parts of the Nation to involve themselves with tourism.

CHAPTER 7: CONCLUSION

Limitations and Further Research

The primary research of this thesis was completed near the end of March 2020 during a global pandemic. I was only able to make contact with and interview two of the three operators in the Sea to Sky, and the financial future of the companies interviewed was uncertain. This may influence the responses given as the current state of the world is far from "business as usual".

Limitations also surround the objectivity of the participants. While specific data has been anonymized, operators participating in the interviews are aware that the final thesis will be published in TRU's library. This public availability of results may lead participants to represent a more idealist side of their operations.

There were no second perspectives on any company included in this work so analysis relied on the integrity of individuals.

There are limitations around the voices present in this research. Sex and race play a role in decision making as lived experience is fundamental for world view. The current owners of rafting companies often fall into the same demographic categories; a broader range of perspectives may generate more holistic findings. This interdisciplinary approach covers several disciplines but leaves out even more: hard science studying the impacts of rafting would provide valuable insight into the subject.

As a mostly exploratory document, there are many areas that this thesis has highlighted for future research.

This study used the perspective of owners and managers to paint a picture of the current environmental practices in rafting. It has allowed for a broad view of the industry in the Sea to Sky. To find a more objective measurement of practices by guides and to remove some of the "human factor" described in the interviews, I recommend this problem be approached at a trip- or guide or client level using a more quantitative approach.

The field of environmental economics could create knowledge about whether rafting, with its current practices, is a net positive or negative for the environment; and help set goals for the industry. Operators in this study are the only voice for each of their operations. Phenomenological studies could be performed to explore the work culture of these rafting companies and whether it promotes environmentally responsible behaviour.

Suggestions for Rafting Operators

The following are suggested areas of improvement for rafting operations. They do not reflect the constraints of individual business, but aim to assist companies in creating their own goals towards becoming more sustainable.

Practice Leave No Trace

Leave No Trace means more than picking up your own garbage. The principles apply to many aspects of rafting from tying boats off responsibly to interacting with other parties. All staff should have LNT style training and company policies should reflect this ethos.

Become a Local Steward

Different geographic regions face different threats, not only should you have localised ecological knowledge, but you should actively assist in removing invasive species while protecting local species at risk.

Be a Role Model

As an operator, its your responsibility to set the tone for your guides. Instructing guides is a great start, but for consistent environmentally responsible behaviors to occur, those with power in the organisation must demonstrate a continued effort.

Use Your Platform

Harness the power of influence over the guests. Whitewater trips do not need to stop being fun to create lasting changes to a guest's perception of the environment. Increase your positive environmental impact by finding a way for guides to express their unique personalities while sprinkling in interpretive knowledge.

Minimize Consumption

Rafting operations have many areas in which they can improve efficiency and reduce consumption. Modern vehicles use less fuel. High-efficiency lighting exists and will reduce electricity costs. Water usage may be reduced through low-flow toilets and sinks. Investigate your own operations for unnecessary consumption and find ways to eliminate the excess.

Look for Alternatives

Fossil fuels may not be the only way to ensure your company keeps running. Look at how many of your vehicles could be replaced by electricity or biofuels. Washing gear is

necessary, look for environmentally responsible options when purchasing cleaning supplies. Plastics are no longer reliant on fossil fuels for creation, research companies using plant-based alternatives and try to source your gear from them. Electricity also comes from many sources, considering adopting solar panels to reduce reliance on dams, which damage the river environment.

Measure Your Progress

There is little qualitative data on what is being done in rafting companies. Measuring what you do as a company will not only assist you in achieving goals but may assist future research into the effects of rafting and the development of best practices.

Make Hard Choices

Ensure you run a company with principle. The planet is what allows you to operate and in a larger sense allows for our existence. Make choices based on ethics even if it may affect your bottom line.

Lean into the Change

Both the natural and the political environment of British Columbia are changing. Adapt to a more environmentally conscious future and start actively promoting this change. Indigenous groups may become great allies if you build relationships. Consider outside perspectives on how to achieve your environmental goals.

Conclusion

Due to human actions, the climate is changing. Few can claim to be without responsibility for this global threat. The Sea to Sky, an area adjacent to the ocean and filled

with glaciers, will feel its impacts directly. Local rafting operations will not be able to avoid this truth as they will be forced to adapt to increasingly erratic water levels, shifting seasons and forest fires. This study highlights that at the operational level of the commercial rafting community, there is near consensus that they have a duty to protect this environment and slow climate change. This will take collaborative work between operations and the government, as well between the operations themselves.

Current best management practices are inconsistent and fail to address the negative impacts commercial rafting has on the global environment. Improved practices should be investigated with the creation of targets to improve energy efficiency and carbon neutrality.

There is no need to discard the fun-centered experience of rafting, but if the industry and humanity as a whole fail to improve on their climate impact, the consequences may be dire.

As I conclude this research project, the rafting operation I work for is on fire. People from the area have been evacuated and the business that took years to establish is at risk of turning to ash. This is not an academic problem, but a contemporary threat that will affect our lives. For decades rafting has benefited from the wonderous natural wealth of British Columbia. It is now time to protect it.

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APPENDIX A: ETHICS APPROVAL

December 16, 2019

Mr. Christopher Marr-Laing
School of Tourism\Adventure Guide
Thompson Rivers University

File Number: 102300
Approval Date: December 16, 2019
Expiry Date: December 15, 2020

Dear Mr. Christopher Marr-Laing,

The Research Ethics Board has reviewed your application titled 'Analysis of environmentalism in commercial rafting operations in the Sea to Sky.'. Your application has been approved. You may begin the proposed research. This REB approval, dated December 16, 2019, is valid for one year less a day: December 15, 2020.

Throughout the duration of this REB approval, all requests for modifications, renewals and serious adverse event reports are submitted via the Research Portal. To continue your proposed research beyond December 15, 2020, you must submit a Renewal Form before December 15, 2020. If your research ends before December 15, 2020, please submit a Final Report Form to close out REB approval monitoring efforts.

If you have any questions about the REB review & approval process, please contact the Research Ethics Office via 250.852.7122. If you encounter any issues when working in the Research Portal, please contact the Research Office at 250.371.5586.

Sincerely,

Joyce O'Mahony
Chair, Research Ethics Board

APPENDIX B: SAMPLE INTERVIEW PROMPTS

- What do you do to help mitigate the environmental impacts of your operation?
- What steps do you take to inspire guests to take care of the environment?
- How do you educate guides on local environmental issues?
- Are environmental issues part of regular work discourse?
- Do you require guides to speak about environmental issues in the raft?
- Do you have environmental policy built into either day to day or annual operations?
- Does your business donate to environmental organisations?
- Does your company contribute to research in the environment you operate in? If so, how?
- Do you think that your guests care about the actions your business takes to protect the environment?
- Do you market pro-environment actions in your public advertising?
- Would you consider your company part of the eco-tourism industry?

APPENDIX C: MAP OF THE SEA TO SKY

(Government of BC, 2020)